

Date : 9-11-11
Time : 9.00-12.00

Dept. No.

Max. : 100 Marks

SECTION - A

Answer ALL questions.

(10 x 2 = 20 marks)

1. Distinguish between classification and tabulation.
2. What are the limitations of statistics?
3. State the various methods of collecting primary data.
4. State any two methods of non-probability sampling.
5. Find the median of the following data:
70,60,75,90,65,80,42,65,72
6. Define dispersion. What are the measures of dispersion?
7. The first four central moments are 0, 2.5, 0.7 and 18.75. Comment on the skewness and kurtosis of the distribution.
8. What are the properties of correlation coefficient?
9. State Yule's coefficient of variation.
10. What is time series? What are its components?

SECTION - B

(5 X 8 = 40 Marks)

Answer any FIVE questions

11. Mention the uses of diagrammatic and graphical representation of data.
12. Describe the following and give their relative merits and demerits:
(a) Judgment Sampling (b) Cluster Sampling
(c) Multistage Sampling (d) Quota Sampling
13. Below is given the frequency distribution of marks in statistics obtained by 100 students in a class. Determine the Ogive for this distribution and use it to determine the median.

Marks	20 – 29	30 – 39	40 – 49	50 – 59	60 – 69	70 – 79	80 – 89	90 – 99
No. of students	7	11	24	32	9	14	2	1

14. Calculate the harmonic mean for the following data:

x	10	12	14	16	18	20
f	5	18	20	10	6	1

15. The first four moments of a distribution about the value 5 are 2, 20, 40 and 50. Obtain the mean, variance, β_1 and β_2 .

16. Calculate Karl Pearson's coefficient of correlation from the following data:

Demand (kg)	85	93	95	105	120	130	150	160
Price (Rs.)	15	18	20	24	30	35	40	50

17. Fit a straight line trend for the following data by the method of least squares. Also estimate the trend value for the Year 2005.

Year	1996	1997	1998	1999	2000	2001
Production	7	9	12	15	18	23

18. 200 Candidates appeared for a competitive examination and 60 of them succeeded. 35 received special coaching and out of them 20 candidates succeeded. Prepare a 2X2 contingency table and using Yule's coefficient, discuss whether special coaching is effective or not.

SECTION - C

(2 X 20 = 40 Marks)

Answer any TWO questions

19.(a) Calculate the mean, median and mode from the following data and verify the empirical relationship.

C.I	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
F	3	7	13	17	12	10	8	8	6	6

(10)

19.(b) Find the quartile deviation and coefficient of quartile deviation for the following data:

Marks	0-10	10 - 20	20-30	30-40	40-50	50-60
Frequency	8	20	25	30	12	5

(10)

20.(a) The mean and standard deviation of 200 items are found to be 60 and 20 respectively. If at the time of calculations two items were wrongly taken as 3 and 67 instead of 13 and 17 find the correct mean and standard deviation. What is correct coefficient of variation?

(10)

20.(b) Calculate the first four moments about mean for the following data:

Variable	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40
Frequency	2	5	7	13	21	16	8	3

(10)

21 (a) You are given below the following information about advertising and sales

	Adv .Exp(X) (Rs. Lakhs)	Sales (Y) (Rs. Lakhs)
Mean	10	90
S.D	3	12

Correlation coefficient = 0.8

(i) Obtain the two regression lines.

(ii) Find the likely sales when advertisement expenditure is Rs.15 lakhs .

(iii) What should be the advertisement expenditure if the company wants to attain sale target of Rs.120?

(10)

21(b) Ten competitors in a beauty contest are ranked by 3 judges in the following order:

1 st judge	2	7	1	5	3	4	8	6	10	9
2 nd judge	10	6	3	8	7	2	9	5	4	1
3 rd judge	2	5	6	9	1	3	7	4	8	10

Use rank correlation coefficient to determine which pair of judges has the nearest approach to common taste in beauty.

(10)

22.(a) From the following data calculate the four-year moving average and determine the trend values. Find the short-term fluctuation.

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Value	50.0	36.5	43.0	44.5	38.9	38.1	32.6	41.7	41.1	33.8

(10)

22.(b) Calculate the seasonal indices from the following data using the simple average method.

Year	1 st quarter	2 nd quarter	3 rd quarter	4 th quarter
2001	40	35	38	40
2002	42	37	39	38
2003	41	35	38	40
2004	35	36	36	41
2005	44	38	38	42

(10)

